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Vidarbha Bahu-uddeshiya Shikshan Sanstha's
TULSIRAMJI GAIKWAD-PATIL
College of Engineering & Technology
An Autonomous Institute
DTE CODE 4151
A+ NAAC
NBA NATIONAL BOARD OF ACCREDITATION

MECHANICAL ENGINEERING DEPARTMENT

TECHNICAL MAGAZINE

https://www.tgpcet.com/

VOLUME 5 ISSUE 2

VISION&MISSION

VISIONOFTHEINSTITUTE

To emerge as a learning Center of Excellence in the National Ethos in domains of Science, Technology and Management.

MISSIONOFTHEINSTITUTE

To strive for rearing standard and stature of the students by practicing high standards of Professional ethics, transparency and accountability.

To provide facilities and services to meet the challenges of Industry and Society.

To facilitate socially responsive research, innovation and entrepreneurship.

To ascertain holistic development of the students and staff members by inculcating Knowledge and profession as work practices.

VISIONOFTHEDEPARTMENT

To Emerge as a Premier Centre in the Field of Mechanical Engineering Education and Produce Competent Engineers.

MISSIONOFTHEDEPARTMENT

To Impart Quality Technical Education Through Effective Teaching- Learning Process.

To Provide a Better Environment to Encourage, Innovation and Entrepreneurship

To Strengthen Industry Institute Interaction to Meet the Challenges of Industry and Society Environment.

To Ensure Overall Development of Students and Staff Members by Inculcating Knowledge and Professional Ethics.

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PEO'S&PSO'S

PEO'S

Graduates will be able to

PEO1: Demonstrate essential technical skills to identify analyze and solve problems and design issues in mechanical engineering

PEO2: Analyze the complex problems in the field of mechanical engineering by using modern tools.

PEO3: Apply mechanical engineering concepts for the betterment of society and environment

PEO4: Develop professionals having administrative and managerial skills for mechanical engineering and allied industries.

PEO5: Demonstrate the attributes of mechanical engineering in lifelong learning to contribute towards societal needs.

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PSO'S

Graduates will be able to

PSO1: Apply the knowledge to work professionally and ethically in Thermal, Design, production and Manufacturing areas of Mechanical engineering.

PSO2: Analyze and design mechanical components and its processes to meet the societal needs.

PSO3: Apply Engineering and Management principles to work professionally in the industry or as an entrepreneur.

PROGRAM OUTCOME

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, naturalsciences,and engineering sciences.

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems:**Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project managementand finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

ABOUT TGPCET

Tulsiramji Gaikwad-Patil College of Engineering and Technology (TGPCET) was established in the year2007 by Vidarbha Bahu-uddeshiyaShikshan Sanstha (VBSS), a registered society. It is a self financed Private Engineering College, which is affiliated to Rashtrasant Tukadoji Maharaj Nagpur University (RTMNU)Nagpur a disapproved by All India Council for Technical Education, New Delhi. And also, college is approved by Directorate of Technical Education (DTE), Mumbai, Maharashtra State. The Institute is Accredited with A+(3.32CGPA) by NATIONAL ASSESSMENTAND ACCREDITATIONCOUNCIL
(NAAC). AnAutonomous Institute affiliated to RTMNagpur University, Nagpur.

The College offers four years UG programs in Nine disciplines of engineering viz. Bio-Technology (B.Tech), Aeronautical Engineering(AE),Computer Science and Engineering(CSE),Information Technology (IT), Electronics and Communication Engineering (ECE), Mechanical Engineering (ME),Civil Engineering (CE), Electrical Engineering (EE) Computer Science and Engineering (Data Science).

TGPCET offers Eight PG programs in engineering viz .Computer Science and Engineering (CSE), Integrated Power System(IPS),Structural Engineering(SE),Electronics and Communication Engineering (ECE), Artificial Intelligence, Machine Learning (AIML) & Mechanical Engineering design (MED), Aeronautical Engineering (AERO) and Electric Vehicle (EVT) and also offers Two years PG programs in Master of Business Administration (MBA) as well as Two years Master in Computer Application (MCA).

In addition, TGPCET conducts three years Diploma programs in six disciplines of engineering such as Civil Engineering (CE), Mechanical Engineering (ME), Computer Science and Engineering (CSE)and Electrical Engineering (EE), Electronics and Communication Engineering (ECE) and InformationTechnology (IT).

College is located in the midst of Multi moda lInternational Cargo Hub and Airport (MIHAN)and alsoin the vicinity of Butibori Industrial area, Nagpur.

College offers additional courses beyond syllabus to expose the students towards the industrial climate by conducting courses in C++ with PYTHON, C#.NET, Java, Oracle-SQL and Administration, CCNA, PLCSCADA, MATLAB, AUTOCAD, STAADPRO, CREO, PHP.

The college has signed MoU with Charusat University,Gujrat Dr.Panjabrao DeshmukhKrishi Vidyapeeth (PDKV),Akola and Vignan's University,Guntur to excel the academic and research capability of staff and students in the emerging fields of Science,Engineering and Agriculture.

Established with B. Tech ME in the year 2007-08 with an intake of 60. It has been one of the key departments, active in teaching and research since its inception in 2007. It has well qualified and experienced faculty with novel teaching methods.

The Department has a state-of-the-art BMW& CNC Laboratory in addition to well-equipped laboratories in the areas of Mechanical Engineering, I.C. Engines, Refrigeration and air-conditioning lab.

The department has Industry Institute Partnership Cell (IIPC) which aims to establish and explore proper links with various departments, agencies and industries all over the country. It also aims to work in close coordination with the industries and organizations for placement and training of the students, to support R & D and sponsored projects from industries, to exchange personnel between the Industries and the Institute by organizing guest lectures by Industrial experts, evaluation of project work, development of curriculum as per industry needs and other academic work in the Institute.

Dear Esteemed Readers,

I take this opportunity to welcome you to the department of Mechanical Engineering which was established in 2011.Our graduates work in the core area such as mining industry, thermal power industry, automobile industry, agricultural sector, shipping industries, aerospace industry and finds its utilities in IT sector for Research and Development activities to meet requirements of present industrial needs.

The primary focus is to impart quality technical educations through effective Teaching Learning process among students .The department having three sponsored Lab 3D Printing, BMW Engine Lab and CNC Lab which is obliging for the superior placement of students as per their domain wise interest. Young, dynamic and experienced faculties provide technical knowledge and facilitate the growth of students. The faculty members display a high level of dedication and enthusiasm towards both teaching and state-of-the- art research.

Department is also having 15 well equipped laboratories including a project laboratory and an Industry sponsored laboratories and research laboratory. Our faculty members have published their research articles in reputed national and international journals. The department is active in organizing the various workshops and seminars for the growth and development of faculty and students. Our department students are also highly encouraged to implement their innovative research ideas with the help of the expert faculty members.

Warm Regards,
Dr.Vijay Talodhikar
Head of Department of Mechanical Engineering
Tulsirami Gaikwad Patil College of Engineering and Technology, Nagpur

EDITORIALBOARD

Prof.Praful Randive
(ChiefEditor)

Prof.Anuj Muley
(Magazine Coordinator)

EDITORIALCOMMITTEE

It brings me immense joy & pleasure to introduce the Fifth edition of the departmental technical Magazine. All the creative energies that came on to this platform in the form of faculty experts & students are finally presenting replica of their enthusiastic hard work through this extravaganza that has come out so organically. Technical & Arts every section shines out differently in its true sense. All the events conducted throughout the year where perfectly planned & executed& the overwhelming response it received said it all! This piece of art would not have been complete without the sheer determination & perseverance of all the students who pushed their limits every time to bring out this artistic reality. Their efforts coupled with immense support from the faculties truly have done justice to carry on the legacy. I am grateful for all the support has received throughout the year in every possible way from the faculties & Students. I hope the readers of the technical Magazine have a wonderful reading experience & wish this year's edition too receives your love & support like it has always received till date.

CONTENT

Insights of project

Sr.No	First Name of Students	Name of Guide	Project Name
1	Yash Butke	Prof. Rahul Lekurwade	Design and Development of smart tea coffee vending machine
2	Minal Meshram		
3	Tanay Singh		
4	UTtkarsh Watkar		
5	Pradeep Gaikwad	Prof. Dipali Bhoyar	Design and Fabrication of power generator forearm machine
6	Atulesh patil		
7	Aniket Singh		
8	Chetan lonkar		
9	Rutvik Dhage	Prof. Gaurav Nagdeve	
10	Pratik Taiwade		
11	Karan Jibhakate		
12	Tanmay Garg		
13	Sahil Ghodmare	Dr. Vijay Talodhikar	Design and Fabrication of seed screening machine for agriculture use
14	Sarthak Khobragade		
15	Prashik Dange		
16	Deep Masboinwar		
17	Amit Kanake		

Insights of Internships

Sr.No	First Name of Students	Company Name	Name Of Mentor
1	Yash V.Butke	V.R.Jamdar Siemense Nagpur	Prof.Praful R.Randive
2	Minal R.Meshram	V.R.Jamdar Siemense Nagpur	Prof.Praful R.Randive
3	Pradeep R.Gaikwad	V.R.Jamdar Siemense Nagpur	Prof.Praful R.Randive
4	Utkarsh A.Watkar	V.R.Jamdar Siemense Nagpur	Prof.Praful R.Randive
5	Tanay J.Singh	Indorama Synthetics India Ltd.Butibori	Prof.Abhijit Misal
6	Atulesh C.Patil	Indorama Synthetics India Ltd.Butibori	Prof.Abhijit Misal
7	Aniket D.Singh	Indorama Synthetics India Ltd.Butibori	Prof.Abhijit Misal
8	Chetan D.Lonkar	Indorama Synthetics India Ltd.Butibori	Prof.Abhijit Misal
9	Karan S.Jibhakate	Suntronic Renevable Pvt.Ltd.Nagpur	Prof.Gaurav Nagdeve
10	Rutvik P.Dhage	Suntronic Renevable Pvt.Ltd. Suntronic Ren Suntronic Renevable Pvt.Ltd.Nagpur evable Pvt.Ltd.Nagpur Nagpur	Prof.Gaurav Nagdeve
11	Tanmay G.Garg	Suntronic Renevable Pvt.Ltd.Nagpur	Prof.Gaurav Nagdeve
12	Pratik N.Taiwade	Sunvijay Infrastruture Pvt.Ltd.Butibori	Prof.Gaurav Nagdeve
13	Sarthak B.Khobragade	Suntronic Renevable Pvt.Ltd.Nagpur	Prof.Ravindra Shende
14	Sahil N.Ghodmare	Suntronic Renevable Pvt.Ltd.Nagpur	Prof.Ravindra Shende
15	Prashik M.Dange	Suntronic Renevable Pvt.Ltd.Nagpur	Prof.Ravindra Shende
16	Deep Dinesh Masboinwar	Suntronic Renevable Pvt.Ltd.Nagpur	Prof.Ravindra Shende
17	Amit G.Kanake	Suntronic Renevable Pvt.Ltd.Nagpur	Prof.Ravindra Shende

Sr. No.	Name of faculty	Title of paper	Name of Journal
1	Prof. Vivek patil	Design and fabrication of advanced layered movement of object collector robotic ARM	1st international conference on digital transformation for adavance manufacturing urban development at GHRCE JALGAON
2	Prof. Dipali Bhoyar	Design and analysis of hydraulic mini press machine	International Conference on Advances in Computing Control and Telecommunication Technologies 2025
3	Prof. Pramar Bakane	Design and fabrication of advanced lian urban turbine for efficient power generation.	1st international conference on digital transformation for adavance manufacturing urban development at GHRCE JALGAON
4	Dr. Vinay Kumar	Design Optimization and Rigid Body Dynamics of a Robotic Arm Using Advanced Simulation Tools.	ICRIPE-2025 23rd-24th January 2025
5	Dr. Chaitanya Maddila	Design and fabrication of advanced Savonius axial wheel turbine structure for efficient multi station power generation	ICRIPE-2025 23rd-24th January 2025
6	Prof.Gaurav Nagdeve	Design and Development of welding fixture for the angle bracket for industrial uses.	ICRIPE-2025 23rd-24th January 2025
7	Prof.Ritesh Banpurkar	Analysis of Fusion of Filament of 3 D printing.	ICRIPE-2025 23rd-24th January 2025
8	Prof. Vijay Talodhikar	Comprehensive design and load analysis of free-standing i-beam jib cranes	ICRIPE-2025 23rd-24th January 2025
9	Prof. Praful Randive	Design & Analysis of Portable Injection Moulding Machine	ICRIPE-2025 23rd-24th January 2025
10	Prof. Ravindra Shende	Design and Analysis of Biomass Pyro-chulha.	ICRIPE-2025 23rd-24th January 2025
11	Prof. Vishwjeet Ambade	Modeling Simulation on mechanical properties of fiber reinforced composites	ICRIPE-2025 23rd-24th January 2025
12	Prof. Niteen Kakade	Optimizing Design through Modal Analysis of Carburetor Intake Manifold Dynamics	1st international conference on digital transformation for adavance manufacturing urban development at GHRCE JALGAON

Faculty Research Corner-Patent

Sr. No	Patent Application No.	Title of Patent	Applicant(s) Name	Patent Published/Grant Date (dd/mm/yyyy)
1	202521004188	AI Enabled chatbots for enhancing learning experience of students	Dr. Vijay Talodhikar	2/14/2025
2	202521004187	System And Method For Personalized Learning Paths In Management And Computer Applications	Mr. Ritesh Banpurkar	2/14/2025
3	202521020568	A System And Method For Business Analytics Education Using Real-Time Data Feeds	Dr. Vinay Kumar Gadpayle	3/21/2025
4	202521006423	AI-Powered System for Early Identification of Entrepreneurial Potential in Students	Mr. Ritesh Banpurkar	2/21/2025
5	202521006453	System and Method for Cloud-Based Integrated Management of Students Curriculum	Mr. Ritesh Banpurkar	2/21/2025
6	202521021196	A System and Method for Interactive Real-Time Case Study Simulations In MBA and MCA Training	Mr. Ritesh Banpurkar, Mr. Abhijeet Misal	3/21/2025


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Department for Promotion of Industry and Internal Trade
Ministry of Commerce & Industry,
Government of India
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Application Details

APPLICATION NUMBER	202521004188
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	17/01/2025
APPLICANT NAME	1 . Dr. Pratik Ghutke 2 . Dr. Pragati Patil 3 . Dr. Vijay Talodhikar 4 . Kapil Dineshrao Garje 5 . Praddumna Mohanrao Golhar 6 . Vaishnavi Shravan Gawali 7 . Krishna Prakash Mendulkar 8 . Nutan Gajanan Gawai 9 . Rhutika Keshav Wad 10 . Neha Charandas Dahiwale 11 . Saikrishna Pandurang Yengandhewar 12 . Radhika Chintaman Kamdi 13 . Tejaswita Dipak Gurde
TITLE OF INVENTION	AI ENABLED CHATBOTS FOR ENHANCING LEARNING EXPERIENCE OF STUDENTS
FIELD OF INVENTION	PHYSICS
E-MAIL (As Per Record)	as.mahesh.ec@gmail.com
ADDITIONAL-EMAIL (As Per Record)	
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	14/02/2025

Application Status

APPLICATION STATUS	Awaiting Request for Examination

View Documents

Filed → Published → RQ Filed → Under Examination → Disposed

In case of any discrepancy in status, kindly contact ipo-helpdesk@nic.in

1. Dr.Vijay Talodhikar


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Government of India
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Application Details

APPLICATION NUMBER	202521020568
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	06/03/2025
APPLICANT NAME	1 . Prof. Praful Ghadge 2 . Dr. Vinay Kumar Gadpayle 3 . Prof. Vivek Patil 4 . Mr. Gaurav Dnyaneshwar Khandare 5 . Ms. Snehal Vishwanath Wakde 6 . Mr. Mithilesh Dnyaneshwar Khobragade 7 . Ms. Archi Vinod Hadaoo 8 . Ms. Anuradha Shankar Bansod 9 . Mr. Suraj Satyavijay Mahalle 10 . Ms. Samiksha Chhatru Darode 11 . Mr. Chirag Khadgi 12 . Mr. Kartik Satyakumar Gawande 13 . Mr. Akshay Vasantrao Jikar 14 . Ms. Prajakta Hemantkumar Hatewar 15 . Ms. Pratma Arun Ganfade
TITLE OF INVENTION	A SYSTEM AND METHOD FOR BUSINESS ANALYTICS EDUCATION USING REAL-TIME DATA FEEDS
FIELD OF INVENTION	COMPUTER SCIENCE
E-MAIL (As Per Record)	as.mahesh.ec@gmail.com
ADDITIONAL-EMAIL (As Per Record)	as.mahesh.ec@gmail.com
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	
PUBLICATION DATE (U/S 11A)	21/03/2025

Application Status

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3.Dr. Vinay Kumar Gadpayle

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Application Details	
APPLICATION NUMBER	202521006453
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	27/01/2025
APPLICANT NAME	1 . Dr. Pragati Patil 2 . Dr. Pratik Ghutke 3 . Ritesh Banpurkar 4 . Aditya Vijay Zodape 5 . Sumedh Sanjay Zodape 6 . Gitesh Padmakar Shinde 7 . Satyafulesh Rakesh Rangari 8 . Ashish Arjun Rathod 9 . Krutika Dharamdas Meshram 10 . Ayush Ramesh Hiwase 11 . Aniket Udaram Nikhare 12 . Piyush Liladharrao Tadas 13 . Raj Ramdas Warhokar
TITLE OF INVENTION	SYSTEM AND METHOD FOR CLOUD-BASED INTEGRATED MANAGEMENT OF STUDENTS CURRICULUM
FIELD OF INVENTION	COMPUTER SCIENCE
E-MAIL (As Per Record)	as.mahesh.ec@gmail.com
ADDITIONAL-EMAIL (As Per Record)	
E-MAIL (UPDATED Online)	
PRIORITY DATE	
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5. Prof.Ritesh Banpurkar

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Application Details	
APPLICATION NUMBER	202521006423
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	27/01/2025
APPLICANT NAME	1 . Dr. Pratik Ghutke 2 . Prof. Ganesh Wakte 3 . Prof. Ritesh Banpurkar 4 . Ranu C. Wasnik 5 . Ms. Minal R. Barde 6 . Ms. Chetna G. Naware 7 . Ms. Pooja Khushalrao Gotmare 8 . Ms. Reena Vikas Mandekar 9 . Ms. Chinteshwari Suryakant Bhujade 10 . Ms. Sanika Bawangade 11 . Ms. Apurva Dilip Ragit 12 . Ms. Shivani Prakash Pappulwar 13 . Ms. Sejal Naphade
TITLE OF INVENTION	AI-POWERED SYSTEM FOR EARLY IDENTIFICATION OF ENTREPRENEURIAL POTENTIAL IN STUDENTS
FIELD OF INVENTION	COMPUTER SCIENCE
E-MAIL (As Per Record)	as.mahesh.ec@gmail.com
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4.Ritesh Banpurkar

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Application Details	
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APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	09/03/2025
APPLICANT NAME	1 . Prof. Ritesh Banpurkar 2 . Prof. Ganesh Wakte 3 . Prof. Abhijeet Misal 4 . Ms. Sakshi Bhowate 5 . Ms. Sakshi Meshram 6 . Ms. Payal Sindhpure 7 . Ms. Anamika Chate 8 . Ms. Prajakta Khuje 9 . Ms. Sakshi Gawande 10 . Ms. Anjali Gawande 11 . Ms. Riya Borkar 12 . Ms. Sweety Pimpalkar 13 . Mr. Chetan Giradkar
TITLE OF INVENTION	A SYSTEM AND METHOD FOR INTERACTIVE REAL-TIME CASE STUDY SIMULATIONS IN MBA AND MCA TRAINING
FIELD OF INVENTION	PHYSICS
E-MAIL (As Per Record)	as.mahesh.ec@gmail.com
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PUBLICATION DATE (U/S 11A)	21/03/2025

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6.Prof. Ritesh Banpurkar

Research Corner: Student and Faculty Publications

Sr. No.	Name of Student	Topic	Publication Information	Position/ Remark	Event Organized By	Name of Faculty
1	Rishuja Khobragade	Design & Analysis of Portable Injection Molding Machine	UGC Care, www.isteonline.in No. 2 March 2025	Published	Research Paper	Prof. Praful Randive
2	Gajanan Chavan	Design and Analysis of Hydraulic Mini Press Machine	UGC Care, www.isteonline.in Vol. 48 Special Issue No.02, March 2025.	Published	Research Paper	Prof. Dipali Bhoyar
3	Mohammed Rehan Khan	Design Optimization and Rigid Body Dynamics of a Robot Arm Using Advanced Simulation Tools	UGC Care, www.isteonline.in Vol. 48 Special Issue No.02, March 2025	Published	Research Paper	Anuj Muley
4	Rishuja Khobragade	Design & Analysis of Portable Injection Molding Machine	International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 09 Issue: 05 | May - 2025 SJIF Rating: 8.586 ISSN: 2582-3930	Published	Research Paper	Prof. Praful Randive
5	Nilesh Raut	Design & Analysis of Welding Fixture for the Angle Bracket	International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 09 Issue: 05 | May - 2025 SJIF Rating: 8.586 ISSN: 2582-3930	Published	Research Paper	Prof.Gaurav Nagdeve

6	Gajanan Chavan	Design and Analysis of Hydraulic Mini Press Machine	International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 09 Issue: 05 | May - 2025 SJIF Rating: 8.586 ISSN: 2582-3930	Published	Research Paper	Prof. Dipali Bhoyar
7	Mohammed Rehan Khan	Design Optimization and Rigid Body Dynamics of a Robot Arm using Advanced Simulation Tools	International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 09 Issue: 05 | May - 2025 SJIF Rating: 8.586 ISSN: 2582-3930	Published	Research Paper	Prof. Anuj Muley,Dr. Vinay Kumar 2, Dr. Vijay Talodikar,

Design & Analysis of Portable Injection Molding Machine

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ABSTRACT

This review paper focuses on the design and analysis of a portable injection molding machine. A small and easy-to- use injection molding technique is required due to the growing need for adaptable and effective manufacturing solutions. In order to improve portability without sacrificing performance.

By studying various research paper, important design components like heating and cooling system, a robust yet lightweight construction, and an intuitive control interface can be carried out. Finite Element Analysis (FEA) is used to evaluate the machine's structural integrity and thermal efficiency in order to guarantee optimal performance under a range of conditions. The study of research paper also help in making the machine less expensive than its traditional counterparts, making it accessible to start-ups and educational projects.

KEYWORDS *: Plastic injection molding, Molding machine, CAD, CAE, Structural analysis, Machine design, Solid works.*

INTRODUCTION

The injection molding process, a cornerstone of modern manufacturing, is widely utilized to produce a variety of plastic parts for use in electronics, consumer goods, and the automotive sector. Traditional injection molding machines can be very effective for large-scale manufacturing, but their size, expense, and complexity can sometimes be barriers to their use for start-ups, small businesses, and educational institutions. In response to these challenges, the need for portable injection molding machines that are adaptable, affordable, and easy to use is growing.

Background

Injection molding is the process of melting plastic pellets and then forcing them into a mold hole under intense pressure. When the plastic cools, it solidifies into the desired shape. This method is prized for its ability to produce intricate designs with high repeatability and little wastage. However, because of their big size, expensive cost, and high power consumption, conventional machines are not feasible for smaller-scale applications.

Importance of Portability

For a number of reasons, the idea of mobility in injection molding has become crucial.

- Accessibility: Smaller companies and academic institutions frequently lack the funds necessary to purchase massive, industrial-grade equipment. Access to cutting-edge manufacturing technologies can be made more accessible through portable devices.
- Flexibility: On-site production made possible by portable machinery cuts lead times and transportation expenses. Small batch production and prototyping particularly benefit from this.

LITERATURE REVIEW

1. Ajay P Shevale, Ronak Shah Study say that In plastic processing industries, a wide variety of injection molding machines are offered based on their clamping unit. A component known as the shutter in a hydraulic ram type clamping machine frequently breaks down as a result of the enormous compression force applied to it. In order to strengthen shutters and lower their

Design and Analysis of Hydraulic Mini Press Machine

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ABSTRACT

This review paper gives us the detail study of the project presenting the design analysis of a hydraulic small pres machine. The primary objective of the project is to develop a compact, useful, and cost-effective hydraulic press tha can be utilized for a number of applications, such as pressing, shaping, and assembling small work components. Pascal Law and hydraulic power enable the machine to generate significant forces with minimal input. The design proces includes selecting the appropriate components, materials, and sizes for hydraulic systems, including pumps, cylinder and valves.

To ensure safety and efficiency, a number of essential parts are chosen and examined for best performance, includin the frame, hydraulic cylinder, piston, pump, and control valves. Because of its modest size, the machine is designed fo research, educational displays, and small-scale industrial applications.

KEYWORDS *: Hydraulic press machine, Press tool, Solid works, Drafting of machine, Manufacturing tool, CAE Design of machine, CAE.*

INTRODUCTION

Hydraulic press machines are the result of the demand for great force, efficiency, and precision in small designs. Using liquid pressure to generate force and motion, hydraulic presses—which are extensively employed in manufacturing, industrial, and scientific settings—function according to the basic principles of hydraulics. An adaption of conventional hydraulic presses, the Hydraulic Mini Press Machine is made to produce a sizable amount of force in a more compact and smaller package.

Small-scale pressing processes like bending, shaping, punching, and pressing components are crucial for producing precision parts in a variety of industries, particularly in the automotive, electronics, and prototyping sectors. For these uses, miniature hydraulic presses are the perfect answer since they combine the advantages of hydraulic force transmission with a smaller footprint. An effective and economical choice for small-scale activities, a well- designed hydraulic micro press may deliver significant force with little power usage.

Pascal's Law, which asserts that pressure applied to a confined fluid is transmitted undiminished throughout th fluid in all directions, is the fundamental idea underlyin how a hydraulic press operates. Because of this, hydrauli presses may produce a lot of force from a small amount o input force. A hydraulic pump, cylinders, valves, a frame and a control system are usually included in the machine

LITERATURE REVIEW

1. L.Adnan Sherif & Mohammed Sameer Baig Stud say that this essay discusses hydraulics, an applie scientific and engineering field that studies th mechanical characteristics of liquids. Hydraulic which focuses on the engineering applications o fluid characteristics, has its mechanical theoretica underpinnings in fluid mechanic. Hydraulics i utilized in fluid power to generate, control, an transmit power through pressurized liquids, such a my pressing system. Pascal's concept underpins th hydraulic press; pressure in a closed system remain constant at one end, where a piston with a tiny cross sectional area is actuated by a lever to increase force The system's opposite end is connected by small diameter tubing.

Design Optimization and Rigid Body Dynamics of a Robot Arm Using Advanced Simulation Tools

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ABSTRACT

The design and optimization of robotic arms are essential for enhancing performance, precision, and dependability in a variety of applications, including automation, medical robotics, and manufacturing; according to this review paper. The objective of this work is to use sophisticated simulation tools, namely SolidWorks and ANSYS, to optimize the design and investigate the rigid body dynamics of a robotic arm. The focus is on increasing the mechanical design by optimizing critical parameters, including joint configurations, link lengths, and material qualities, to provide optimal performance while minimizing energy consumption, wear, and the danger of mechanical failures. The robotic arm is 3D modelled using SolidWorks, and comprehensive structural and dynamic simulations are performed using ANSYS.

These simulations analyze the arm's behavior under various loading circumstances, quantifying stress, strain, and deformation. To determine crucial design elements, the dynamic performance—which includes the arm's mobility, stability, and reaction to outside forces—is examined. The study's conclusions provide important information for enhancing the robotic arm's design, guaranteeing increased effectiveness, durability, and accuracy. The results contribute to the development of more dependable and efficient robotic systems, supporting their greater application across industries and advancing the state of robotics.

KEYWORDS *: Robot arm, FEA, CAD, Optimization, Solid works, Ansys Workbench, Structural analysis.*

INTRODUCTION

In a variety of sectors, such as manufacturing, automation, and healthcare, robotic arms' performance, accuracy, and dependability are greatly improved by their design and optimization. Robotic arms must function in complex and dynamic environments with great efficiency, stability, and low wear. To accomplish these goals, a thorough comprehension of their dynamic behavior and mechanical design is required. By fine-tuning important characteristics such joint configurations, link lengths, and material qualities, this study aims to optimize the design of a robotic arm. To evaluate the arm's performance under various loading scenarios, sophisticated simulation tools are used, such as SolidWorks for 3D modeling and ANSYS for structural and dynamic analysis. Finding important design elements, increasing energy efficiency, lowering mechanical failures, and guaranteeing ideal motion and stability are all made possible by the analysis. By using this method, the study hopes to aid in the creation of robotic systems that are more dependable and effective and appropriate for a variety of uses.

LITERATURE REVIEW

1. Kevin Morales, Carlos Hoyos, Jesús M. García study presents the building and mechanical structural design of a humanoid robot arm with four degrees of freedom for educational purposes. Beginning with the concept creation phase, the project gathered six recommendations to satisfy client demands. Next, based on the product specification, the concept to be developed is chosen. The final design idea for the suggested concept was the result of seven redesign phases. In particular, continuous simulation steps are performed to observe the stress condition of each component, study the dynamic reaction of the structure under load, and modify the connecting rod's size in accordance with the previously established limits and

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Design & Analysis of Portable Injection Molding Machine

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Abstract - The design and analysis of a portable injection moulding machine that will satisfy the demands of educational institutions and small-scale industries is the main goal of this project. A small and easy-to-use injection moulding technique is required due to the growing need for adaptable and effective manufacturing solutions. In order to improve portability without sacrificing performance, this study describes the creation of a machine that uses cutting-edge materials and creative engineering techniques.
A sturdy yet lightweight structure, an effective heating and cooling system, and an easy-to-use control interface are important design elements. To ensure optimal operation under a variety of settings, Finite Element Analysis (FEA) is used to assess the machine's thermal efficiency and structural integrity. The machine's ability to create high-quality moulded parts with shorter cycle times is demonstrated by performance testing with various thermoplastics.
The machine is affordable when compared to its conventional counterparts, according to the economic analysis, which makes it available to start-ups and educational initiatives. By highlighting the value of flexibility and creativity in manufacturing processes, this study advances the continuous development of injection moulding technology.

Key Words: Plastic injection molding, molding machine, CAD, CAE, Structural analysis, machine design, Solid works.

1.INTRODUCTION *(Size 11, Times New roman)*

In the industrial industry, injection moulding has long been recognised as one of the most efficient and versatile processes for producing plastic components. The large, expensive, and high-volume nature of injection moulding equipment makes them unaffordable for small businesses, research labs, and educational institutions. However, affordable and compact alternatives have been developed in response to the growing demand for flexible and affordable production solutions, particularly for small-batch manufacturing and rapid prototyping.

The Value of Portability
For a number of reasons, the idea of mobility in injection moulding has become crucial.
• *Accessibility:* Smaller companies and academic institutions frequently lack the funds necessary to purchase massive, industrial-grade equipment. Access to cutting-edge manufacturing technologies can be made more accessible through portable devices.

• Flexibility: On-site production made possible by portable machinery cuts lead times and transportation expenses. Small batch production and prototyping particularly benefit from this.

• Innovation in Design: An users may test out novel concepts without taking large financial risks, the move towards smaller machines encourages innovation in product design and development.

Crucial Elements of an Injection Moulding Device:
• Injection Unit: The plastic must be melted and injected into the mould using this part. It is made up of a screw for feeding and mixing the plastic, a barrel for heating and melting the material, and a hopper for loading plastic pellets.
• Clamping Unit: During injection and cooling, the clamping unit maintains the mould halves together under tremendous pressure. During the ejection stage, it also opens and closes the mould. Depending on the type of machine, clamping can be powered by pneumatics, hydraulics, or electro mechanics.
• Mould: The mould is a specially made instrument that establishes the final product's shape. Usually composed of steel or aluminium, it is divided into two parts: the cavity and the core.
• Control System: To manage variables including injection speed, pressure, temperature, and mould opening/closing cycles, contemporary injection moulding machines employ computerised control systems. These systems guarantee the process' accuracy and consistency.

2. Objective

The primary objectives of the project on designing and analysing a portable injection moulding machine are as follows:

- Design a Compact and Efficient Machine
- Conduct Comprehensive Mechanical Analysis

3. Methodology

• CAD Modelling
In Cad Modelling. The portable injection moulding machine was conceptualised and digitally assembled using computer-aided design (CAD). Prior to production, the modelling procedure made sure that component interferences, ergonomic concerns, and spatial limitations were taken into account. SolidWorks 2018's assembly capabilities were used to create the CAD model.

The following subsystem s were included in the machine's design:
• Injection Unit: Consis n of a heated barrel, hopper, nozzle, and plunger screw. With built-in cartridge heaters, the barrel was made to hold thermoplastics like ABS and HDPE.
• Clamping Unit: Enough force is provided by a screw-locking or toggle-based mechanism to hold the mould halves firmly closed during injection.
• Frame: Designed for stability and portability, the main support structure is constructed fr om steel brackets and aluminium profiles.
• Mould Assembly: The nozzle is compatible with a standard two-plate mould. The design includes provisions for ejector pins.

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Design & Analysis of Welding Fixture for the Angle Bracket

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Abstract - The design and development of a welding fixture specifically suited for the effective assembly of angle brackets in industrial applications is the main goal of this project. The necessity for dependable fixtures that guarantee accuracy and stability throughout the welding process has grown significantly as the demand for premium welded components rises. This study describes a methodical way to create a welding fixture that maximises the welding process while supporting angle brackets of different sizes and designs. The design process began with a complete examination of the specifications and needs for the angle brackets, including material qualities, dimensional tolerances, and manufacturing volumes. The choice of materials and design elements to reduce problems like distortion and thermal expansion was informed by a deep understanding of the welding techniques used, such as MIG and TIG welding. Using cutting-edge CAD software, preliminary conceptual drawings were created, enabling the visualisation of crucial parts including clamps, locators, and supports. To guarantee that the angle brackets were positioned securely during the welding process, the fixture's stability and adjustability were given first priority.

Key Words: Fixture design, Angle Bracket, Solid works, drafting of fixture, manufacturing tool, CAD, Tool Design, CAE.

1.INTRODUCTION

Precision-engineered components are becoming more and more necessary in today's fast-paced industrial environment. Among these parts, angle brackets are essential for offering structural support in a variety of settings, such as equipment, automotive assembly, and construction. Angle bracket welding must meet strict quality criteria in addition to guaranteeing strength and stability. A dependable and effective welding fixture is necessary to do this.

In order to minimize movement and guarantee precise alignment, welding fixtures are specialized instruments made to hold work parts in place when welding. Fixtures that can support different geometries and sizes while providing easy access for welding equipment are frequently necessary due to the complexity of modern manufacturing. This requirement emphasises how crucial a well-designed fixture is to increasing output and the calibre of the finished product.

Designing and creating a welding device especially for angle brackets used in industrial settings is the goal of this project. The fixture will address common welding process issues such operator safety, heat distortion, and inaccurate alignment. This project aims to develop a fixture that not only satisfies the technical requirements necessary for efficient welding but also improves the general workflow in a manufacturing setting by utilising cutting-edge design approaches and prototype techniques.

Significant advantages are anticipated from the introduction of this welding setup, such as increased operator ergonomics, decreased cycle times, and greater welding precision. The project aims to provide a solid solution that complies with modern industrial standards and procedures by using a methodical design approach that incorporates thorough testing and iterative improvements. This introduction lays the groundwork for a thorough examination of the welding fixture's design procedure, testing procedures, and expected effects on angle bracket production. High levels of efficiency and precision are becoming more and more necessary in the field of modern manufacturing, especially in assembly processes where structural integrity is crucial. One the angle bracket is one of the most often used parts in many different sectors. These adaptable supports, which strengthen connections and provide stability in structural frames, are crucial in applications such as furniture, automobiles, and construction.

These angle brackets are frequently assembled using the welding technique, but this method has some drawbacks that may affect the product's quality. To achieve robust, dependable joints, precise alignment, stability during welding and dimension prevention are essential. Fabricators struggle to maintain accurate placement without a specialized welding fixture, which can result in misaligned components, uneven weld quality, and higher production costs because of rework and material waste.

2. Objective

- Achieving High Precision
- Reducing Setup Time
- Enhancing Stability
- Ensuring Versatility
- Improving Safety
- Minimizing Waste
- Incorporating Modern Technologies

3. Methodology

• CAD MODELLING
CAD is defined as Computer Aided Design. It is used to design Product on well as tool s; get the manufacturing done in a very easy manner. CAD tools enable precise design, visualization, analysis, and modification of both the angle bracket and the welding fixture prior to physical fabricati on.

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Design and Analysis of Hydraulic Mini Press Machine

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Abstract - This project presents the design, development, and analysis of a hydraulic small press machine. The project's main goal is to create a small, functional, and reasonably priced hydraulic press that can be used for a variety of tasks, including pressing, shaping, and assembling small work pieces. With the use of hydraulic power and Pascal's Law, the machine can produce large forces with little input. Choosing the right materials, parts, and sizes for hydraulic systems such as pumps, cylinders, and valves are all part of the design process. With a pump power consumption of roughly 1.187 kW, the machine's hydraulic system is intended to function at a pressure of 70 MPa and generate a force of 70 kN. To ensure safety and efficiency, a number of essential parts are chosen and examined for best performance, including the frame, hydraulic cylinder, piston, pump, and control valves. Because of its modest size, the machine is designed for research, educational displays, and small-scale industrial applications. The project also includes a thorough examination of the machine's power needs, force production, and operating parameters. To guarantee safe operation, safety features including emergency stop systems and pressure relief valves are included. The goal of this work is to present a prototype design that may be further refined for a range of industrial uses requiring small hydraulic presses.
This study advances the field of hydraulic machinery design by providing an effective solution for small-scale pressing operations by fusing theoretical design calculations with real-world insights

Key Words: Hydraulic Press Machine, Press tool, Solid works, drafting of machine, manufacturing tool, CAD, Design of Machine, CAE

1.INTRODUCTION

Hydraulic press machines are the result of compact designs that require tremendous force, efficiency, and precision. Based on the basic ideas of hydraulics, hydraulic presses generate force and motion through the use of liquid pressure. They are extensively employed in manufacturing, industrial, and laboratory settings. The Hydraulic Mini Press Machine is a modification of conventional hydraulic presses that is intended to deliver a substantial force output in a more compact and smaller form factor. Small-scale pressing processes like bending, shaping, punching, and pressing components are crucial for producing precision parts in a variety of industries, particularly in the automotive, electronics, and prototyping sectors. For these uses, miniature hydraulic presses are the perfect answer since they combine the advantages of hydraulic force transmission with a smaller footprint. An effective and economical choice for small-scale activities, a well-designed hydraulic micro press may deliver significant force with little power usage. Pascal's Law, which states that pressure applied to a confined fluid is transferred undiminished throughout the fluid in all directions, allows a hydraulic press to generate a significant output force from a very small input force. The machine usually consists of a hydraulic pump, cylinders, valves, frame, and a control system, all of which work together to transmit pressure and force, converting hydraulic energy into mechanical work. The design and study of a hydraulic micro press machine is the major goal of this project, which aims to maximize performance, guarantee safety, and keep costs down for real-world industrial application. To guarantee dependable and seamless functioning, the design incorporates safety features, calculates the necessary forces and power, and carefully chooses main rials and components. The machine is made to be small enough for simple installation and usage in a variety of small-scale manufacturing settings, and the hydraulic system is precisely proportioned to produce the required force output. The system's analysis includes a thorough examination of the forces at play, the hydraulic system's fluid dynamics, the pump's power needs, and the choice of materials for important parts to guarantee longevity and effectiveness. Furthermore, the design process incorporates safety considerations including emergency stop devices, pressure relief valves, and fluid leak protection.

By combining efficiency, accuracy, and safety in a small package, the project's ultimate goal is to create a hydraulic mini press machine prototype that provides solutions for small-scale production, educational demonstrations, and research applications. This paper advances hydraulic press technologies by offering insightful information about the use of hydraulic systems in small-scale industrial gear.

2. Objective

The creation of a small, effective, and useful hydraulic press that can carry out precise tasks in small-scale applications is the main goal of the Design and Analysis of Hydraulic Mini Press Machine project. These goals direct the machine's development, guaranteeing that it satisfies the necessary performance requirements while tackling real-world design, safety, and cost-effectiveness issues. The following is a summary of the project's specific goals:

- Design a Compact and Functional Hydraulic Mini Press Machine
- Determine the Required Force and Power Specifications
- Material Selection and Component Sizing
- Optimize Fluid Dynamics for Efficiency
- Develop a Reliable Safety Mechanism
- Implement a User-Friendly Control System
- Prototype Development and Performance Testing
- Analyze Operational Efficiency and Cost-Effectiveness

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Design Optimization and Rigid Body Dynamics of a Robot Arm using Advanced Simulation Tools

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Abtract - Robotic arm design and optimisation are essential for improving performance, precision, and dependability in a variety of applications, including automation, medical robotics, and manufacturing. The objective of this project is to use sophisticated simulation tools, namely SolidWorks and ANSYS, to optimise the design and analyse the rigid body dynamics of a robotic arm. In order to obtain optimal performance while minimising wear, energy consumption, and mechanical failures, the study focuses on enhancing the mechanical design by optimising important factors such joint configurations, link lengths, and material qualities. While ANSYS is used to do thorough structural and dynamic simulations, evaluate stress, strain, and deformation, and examine the arm's behaviour under various loading circumstances, SolidWorks is used for 3D modelling. Through simulations, the dynamic performance—which includes the arm's motion, stability, and reaction to external forces—is examined, enabling the discovery of crucial design elements. The results of this investigation offer valuable perspectives for enhancing the design of the robotic arm, guaranteeing increased effectiveness, durability, and accuracy. The findings pave the way for the deployment of robotic systems in a variety of applications by advancing more dependable and effective robotic systems.

Key Words: Robot arm, FEA, CAD, Optimization, Solid works, Ansys Workbench, Structural Analysis

1.INTRODUCTION

Robotic arms are at the forefront of automation and precision jobs in a variety of industries, including manufacturing, research, medical applications, and aerospace, in the quickly developing field of robotics. Optimising the design and functionality of robotic arms has become crucial due to the growing need for more accurate, productive, and adaptable robotic systems. These systems are essential for automating procedures like welding, packing, assembly, and surgery because of their unparalleled precision in carrying out repetitive activities. However, creating a robotic arm that satisfies these demanding performance standards requires resolving a number of intricate issues with its dynamics, kinematics, and mechanical structure. The capacity to execute precise movements with high strength, durability, and low energy consumption is the foundation of robotic arm design. Thisentails optimising a number of design aspects, such as the actuators employed, joint configurations, link geometry, and material selection. Furthermore, dynamic performance is essential since robotic arms need to be able to react to changing loads, outside disruptions, and quickly shifting operational circumstances. Any of these problems could result in catastrophic failures, decreased performance, or mechanical wear. Therefore, to guarantee that a robotic arm operates dependably and effectively over time, design optimisation and rigid body dynamics analysis are essential. Engineers and designers are increasingly using simulation tools to model and assess robotic arm systems in a virtual environment prior to actual installation in order to address these issues. By reducing the expense and duration of physical testing, these simulation tools enable the optimisation of robotic arm designs and the assessment of their dynamic and structural performance under realistic circumstances. The industry makes extensive use of SolidWorks, a potent computer-aided design (CAD) program, to produce 3D models and robotic system prototypes. SolidWorks is a crucial tool for modelling robotic arms because it makes it possible to create intricate mechanical structures and replicate their behaviour within the program. Designers may simply alter geometry and experiment with various design iterations because to the platform's user-friendly interface and parametric model creation features. Following the creation of the geometric model in SolidWorks, comprehensive analysis of the structural and dynamic performance of the robotic arm is carried out using ANSYS, a top simulation program. For doing finite element analysis (FEA), rigid body dynamics simulations, and multibody dynamics (MBD) simulations—all essential for assessing the arm's behaviour under various operating conditions—ANSYS offers a range of robust tools. Engineers may examine forces, stresses, and deformations, simulate the arm's motion, and make sure the design can support actual operating loads by utilising ANSYS. The process of methodically enhancing the robotic arm's geometry and material characteristics to maximise performance while reducing resource consumption—such as energy, materials, and weight—is known as design optimisation.

2. Objective

The primary objective of this project is to design, optimize, and analyse a robotic arm using advanced simulation tools, specifically SolidWorks and ANSYS, to improve its performance, structural integrity, and dynamic behaviour. The specific objectives of the project are as follows:

- Design a Robotic Arm Model Using SolidWorks
- Perform Structural and Dynamic Analysis Using ANSYS
- Optimize the Design Parameters for Performance Improvement
- Evaluate the Robotic Arm's Efficiency and Durability

Some Important YouTube Links

Sr. No.	Name of Subject	Name of Faculty	Name of Topic	Link of Youtube Lectuer
1	Engineering Thermodynamics	Mr.Ravindra Shende	Zeroth law of Thermodynamics	https://youtu.be/90_I65js2kw
2	Engineering Thermodynamics	Mr.Ravindra Shende	Numerical on First law of Thermodynamics	https://youtu.be/88d7XK8-CGs
3	Engineering Thermodynamics	Mr.Ravindra Shende	Steady flow Energy Equation for Nozzle	https://youtu.be/R3KKxHklk60
4	Engineering Thermodynamics	Mr.Ravindra Shende	Heat Transfer in various processes	https://youtu.be/5Kd3izbR4CM
5	Engineering Thermodynamics	Mr.Ravindra Shende	Application of Steady flow energy equation	https://youtu.be/88d7XK8-CGs
6	Engineering Thermodynamics	Mr.Ravindra Shende	Concept of Thermal Equilibrium	https://youtu.be/90_I65js2kw
7	Engineering Thermodynamics	Mr.Ravindra Shende	Steam Nozzle	https://youtu.be/EmobmjJ04L8
8	Engineering Thermodynamics	Mr.Ravindra Shende	Second law of Thermodynamics	https://youtu.be/NJmHYtMgEYs
9	Engineering Thermodynamics	Mr.Ravindra Shende	Heat Engine, Heat pump and refrigerator	https://youtu.be/p6Wgl-acQ7g
10	Engineering Thermodynamics	Mr.Ravindra Shende	Relationship between COP of Heat pump and COP of Refrigerator	https://youtu.be/JQaNcYD7CI4
11	Engineering Thermodynamics	Mr.Ravindra Shende	Carnot Cycle	https://youtu.be/DpxVUVBWYBQ
12	Engineering Thermodynamics	Mr.Ravindra Shende	Numerical on Heat Engine	https://youtu.be/J7N73c4erGE
13	Engineering Thermodynamics	Mr.Ravindra Shende	Derivation of intermediate temperature of Heat Engine	https://youtu.be/UuOW4a1y5HQ
14	Engineering Thermodynamics	Mr.Ravindra Shende	Concept of Clausius Inequality	https://youtu.be/Jgj3_PFKx3s
15	Engineering Thermodynamics	Mr.Ravindra Shende	Basic Concept of Entropy	https://youtu.be/SGa8Bnr_QGM
16	Engineering Thermodynamics	Mr.Ravindra Shende	Dryness fraction	https://youtu.be/byuFCx58834
17	Engineering Thermodynamics	Mr.Ravindra Shende	Triple Point of water	https://youtu.be/KNI4Wj6u7d8
18	Engineering Thermodynamics	Mr.Ravindra Shende	Specific volume of Mixture	https://youtu.be/byuFCx58834
19	Engineering Thermodynamics	Mr.Ravindra Shende	Mollier Diagram	https://youtu.be/YwoiYrA_ugY
20	Manufacturing Processes	Mr.Ashwadeep Fulzele	Introduction to Abrasive Machining Processes	https://youtu.be/NEVMm3ykgvQ

21	Manufacturing Processes	Mr.Ashwadeep Fulzele	Grinding Machine	https://youtu.be/2A2oP1BKQMo
22	Manufacturing Processes	Mr.Ashwadeep Fulzele	MP Pract 1 Lathe Machine- Construction	https://youtu.be/6WxXW2OInlE
23	Manufacturing Processes	Mr.Ashwadeep Fulzele	Abrasives in grinding	https://youtu.be/__Pm3SnsKSw
24	Manufacturing Processes	Mr.Ashwadeep Fulzele	Adhesives Bonds and Grain size in Grinding	https://youtu.be/AlTBsGSgAsE
25	Manufacturing Processes	Mr.Ashwadeep Fulzele	Typces of Grinding Whee;s & Marking System	https://youtu.be/ClrTxg6TBrQ
26	Manufacturing Processes	Mr.Ashwadeep Fulzele	Cutting Process in Grinding	https://youtu.be/OVCdizG4TTw
27	Manufacturing Processes	Mr.Ashwadeep Fulzele	Other superfininshing process & Problems in grinding	https://youtu.be/vCqBQeh-7nk
28	Manufacturing Processes	Mr.Ashwadeep Fulzele	MP Pract 2 Taper Turning Operation	https://youtu.be/9PRtBjTgYlo
29	Manufacturing Processes	Mr.Ashwadeep Fulzale	MP pract 3 Drilling Operation on Lathe	https://youtu.be/jbHYfi_sC-c
30	Mechatronics	Mrs.Shubhangi Gondane	Introduction of Mechatronics	https://youtu.be/DHWa35oEyM0
31	Mechatronics	Mrs.Shubhangi Gondane	Control System	https://youtu.be/7m3iflBLvIw
32	Mechatronics	Mrs.Shubhangi Gondane	Feedback control system	https://youtu.be/Rpc7oFRa8IM
33	Mechatronics	Mrs.Shubhangi Gondane	Generlized Measurement system	https://youtu.be/F5qaYeip0rY
34	Mechatronics	Mrs.Shubhangi Gondane	Anti Breaking system (ABS)	https://youtu.be/W5y6vAWRnw8
35	Mechatronics	Mrs.Shubhangi Gondane	Atumatic Parking System (APS)	https://youtu.be/ETOtaVeGIGw
36	Mechatronics	Mrs.Shubhangi Gondane	Auto - polit and Tilting of train	https://youtu.be/up9Wcl-GJeI
37	Mechatronics	Mrs.Shubhangi Gondane	Data Aqusition System	https://youtu.be/wuDg1JpMyDk
38	Mechatronics	Mrs.Shubhangi Gondane	Introduction of data logger	https://youtu.be/AfT5WQ-Zj9E
39	Mechatronics	Mrs.Shubhangi Gondane	Peripheral Interfacing adopter (PIA)	https://youtu.be/MYSQxkBHG2E
40	Mechatronics	Mrs.Shubhangi Gondane	Introduction of SCADA	https://youtu.be/qtFJ5GQLHSE
41	Mechatronics	Mrs.Shubhangi Gondane	Variable Frequency drive (VFD)	https://youtu.be/IESNK3cHJQ8
42	Mechatronics	Mrs.Shubhangi Gondane	Data signal Processing (DSP)	https://youtu.be/lA7JYea4k5o
43	Mechatronics	Mrs.Shubhangi Gondane	Analog to Digital Converter	https://youtu.be/D-_tCVnpq2I
44	Mechatronics	Mrs.Shubhangi Gondane	Digital to Analog Converter	https://youtu.be/-xPUJCgTQeM
45	Mechatronics	Mrs.Shubhangi Gondane	Electrical Actuation System	https://youtu.be/wtXCh-fXQJI
46	Mechatronics	Mrs.Shubhangi Gondane	Introduction of DC motor	https://youtu.be/5hlqPIQ9On0
47	Mechatronics	Mrs.Shubhangi Gondane	Introduction of Stepper Motor	https://youtu.be/EdXdIRlI21A
48	Mechatronics	Mrs.Shubhangi Gondane	Mechanical Actuation System	https://youtu.be/TJVuy2sO2-E

Technical Events (Session2024-25)

Sr. No.	Activities	Details of Activity	Resource Person	Date of Conduction
1	KEC International Ltd. Nagpur	Industrial Visit	Raman Badge, Training officer	13-01-2025
2	Koradi Thermal Power Station Nagpur,	Industrial Visit	Mrs.Swati Wasnik,Traning Officer	31-01-2025
3	Tata Advanced System Nagpur	Industrial Visit	Mr.Satish Jugele, Assistant Manager	12-02-2025
4	3D Printing and Innovative Product Development	Guest Lecture	Dr. A. M. Kuthe, Professor and Incharge of BETIC, VNIT, Nagpur	11-01-2025
5	Shop floor management	Guest Lecture	Mr. SanjayAgrawal, head training Department, Mahindra & Mahindra Ltd Nagpur,	4 -3- 2025
6	Quality System in Total Quality Management	Guest Lecture	Mr. Vivek Shrouti, Deputy General Manager-CS & MC at Evonik Steel Limited,	11-4- 2025
7	Two –Day Workshop on “Hands on Training on ANSYS Software	Workshop	Mr. Mayuresh Kuchekar, a Design Engineer from Virtual Simutech Pvt. Ltd., Pune	24-03-2025

Glimpses of Expert Lectures

3D Printing and Innovative Product Development

Dr. A. M. Kuthe, delivered the lecture on 3D Printing and Innovative Product Development

A group photo with dignitaries and Student during guest lecture on 3D Printing and Innovative Product

Aim:- The aim of the guest lecture was to introduce students to advanced 3D printing technologies and their applications in product design and innovation. It focused on fostering creative thinking, interdisciplinary collaboration, and providing insights into prototyping, research opportunities, and entrepreneurial pathways in additive manufacturing and medical devices.

Objectives:

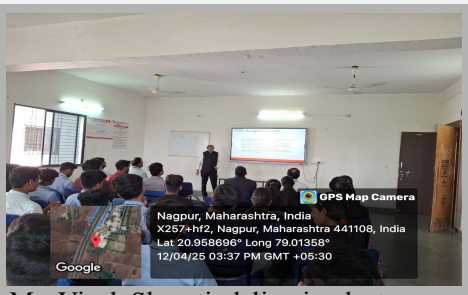
1. To introduce students to the principles and applications of 3D printing technology in product design and development.
2. To explore the role of 3D printing in innovation, particularly in the fields of medical devices and tissue engineering.
3. To encourage students to translate their innovations into entrepreneurial ventures, contributing to societal advancement.

Outcomes of the Event:-

1.Students gained a comprehensive understanding of 3D printing technology and its applications in product development, especially in engineering and medical fields.

2.The program encouraged students to think creatively and approach product design and innovation with a problem-solving mindset, exploring new possibilities in engineering solutions.

Total Quality Management



Mr. Vivek Shrouti, delivering lecture on Quality System in Total Quality Management

Students and faculty understand the principal of management

Aim :-To provide students with valuable insights into effective quality systems within Total Quality Management, enhancing their understanding of quality improvement processes, operational workflows, and strategies for achieving continuous productivity enhancement in industrial settings.

Objectives:-

1.To understand the fundamentals of TQM, focusing on customer satisfaction, continuous improvement, and employee involvement.

2.To explore how integrating quality practices across all departments enhances efficiency and performance.

3.To gain practical experience with tools like Six Sigma, Pareto Analysis, and Control Charts to improve quality and solve problems.

Outcomes

1. Have a deep understanding of Total Quality Management (TQM) fundamentals, including customer satisfaction, continuous improvement, and employee involvement.

2. Understand how integrating quality practices across departments can enhance efficiency and performance.

3. Possess practical knowledge of quality management tools like Six Sigma, Pareto Analysis, and Control Charts.

4. Be familiar with successful TQM implementations, challenges, and benefits in various industries.

5. Be equipped with skills to design and maintain quality management systems aligned with TQM principles.

6. Have benefited from interactive learning and discussions with industry experts, enhancing their understanding of TQM concepts and applications..

Shop floor management

Mr. Sanjay Agrawal delivered lecture on shop floor management

Aim: To provide students with a comprehensive understanding of Shop Floor Management and its applications in the manufacturing industry.

Objective:

1. To introduce students to the concept and importance of Shop Floor Management in manufacturing industries.
2. To discuss the key components of effective Shop Floor Management, including lean manufacturing principles.
3. To explore the role of technology and digitalization in enhancing Shop Floor Management and productivity.

Outcomes:-

1. Students will understand the significance of Shop Floor Management in manufacturing industries and its impact on productivity and efficiency.
2. Students will be able to analyze the key components of effective Shop Floor Management and apply lean manufacturing principles.
3. Students will learn about the application of technology, such as SFC and MES, to enhance Shop Floor Management and productivity.

Glimpses of Industrial Visits

KEC International Ltd. Nagpur

Mr.Raman Badge, Assistant Manager,Trainer Incharge at KEC International Ltd. provided

Students live streaming for testing power transmission testing process

Aim: To conduct Industrial visit for student to develop into professional catering to industry centric technical skills.

Objective:

1.To provide students with practical exposure and hands-on experience in the field of power transmission and distribution,

2.To familiarize them with the latest technologies and industry practices.

3.Quality Standards: Learn about the quality standards and certifications required in the industry, and how they are implemented and maintained.

4.Safety Protocols: Understand the importance of safety protocols in an industrial environment and observe their practical application.

5.Environmental Impact: Gain awareness of the environmental considerations and sustainable practices adopted by the industry.

Outcome of the Visit:

1.Student understand the practical applications of Basics of Electronic and Mechatronics
2.Students emphasis on *PO1,PO2,PO3,PO5 and PO12* due to the technical and Interdisciplinary nature of Mechatronics
3..During Visit Mr. Raman Badge also conducted Activities based on Acid River and Plane Carpet on play group the main aim was to understand the *PO9(Individual and Team work),PO10 (Communication)* were mapped.

Koradi Power Plant

Industrial Visit at Koradi Power Plant

Aim: To conduct Industrial visit for student to develop into professional catering to industry centric technical skills.

Objective:

1. To understand the principles and processes involved in thermal power generation, including coal handling, boiler operations, turbine operations, and power transmission.
2. To observe and learn from the day-to-day operations of a thermal power plant, including maintenance, safety procedures, and environmental measures.
3. To relate theoretical concepts learned in the classroom to real-world applications in a thermal power plant.
4. To develop skills in areas such as teamwork, communication, and problem-solving through interactions with plant personnel and observation of plant operations.
5. To map attainment of course outcome of course Engineering Thermodynamics & Energy Conversion.& Program Outcome PO1,PO2,PO3,PO5,PO9,PO10,PO12,

Outcome of the Visit:

1. Students visited the Coal Handling Plant (CHP) to understand the coal handling process, including

unloading, crushing, and conveying coal to the boiler.
2. Students observed the boiler operations, including the combustion process, steam generation, and superheating.
3. Students visited the turbine area to understand the conversion of thermal energy into mechanical energy, and subsequently into electrical energy

Tata Advanced System Ltd., Nagpur

Industrial Visit at Tata Advanced System Ltd., Nagpur

Aim: To conduct Industrial visit for student to develop into professional catering to industry centric technical skills.

Objective:
1. To provide students with practical exposure and hands-on experience in the latest manufacturing technologies and processes used in the electrical, electronics, and automotive industries..
2. To bridge the gap between theoretical knowledge and industrial applications, enabling students to the practical implications of their studies.
3. To familiarize students with the working culture, safety protocols, and quality control measures adopted by a leading manufacturing company like Tal Manufacturing Solutions Limited.
4. To develop skills in areas such as teamwork, communication, and problem-solving through interactions with plant personnel and observation of plant operations.
5. To provide students with opportunities to interact with industry professionals, learn from their experiences, and gain insights into the latest industry trends and developments.
6. To map attainment of course outcome of course Engineering Mechatronics.& Program Outcome PO1,PO2,PO3,PO4,PO5,PO10,PO11,PO12,

Outcome:

1.: Students visited the various sections of the production floor, including Floor beam of Boeing plane preparation technique
2. Students observed machining of various parts of material like titanium, Alunimum used in Boeing

Plane.
3. Students visited Electronic component assembly used in Boeing aeroplanes, including the 787- 8, 787-9, and 787-10 models.
4. Students observed valuable insights into the company's manufacturing processes, quality control measures, and commitment to delivering high-quality products to the aerospace industry..
5.Student visited the TQM department, where we learned about the company's quality management system, including its policies, procedures, and metrics.

Glimpses of Workshop

Inauguration of of inauguration "Two-day hands-on training program on ANSYS software " by Chief Guest Mr. Mayuresh Kuchekar, Design Engineer, Virtual Simuteach Pvt. Ltd., Pune.

Two –Day Workshop on "Hands on Training on ANSYS Software

Aim: This two-day workshop aims to provide participants with comprehensive hands-on training on ANSYS Software from understanding its core functionalities to applying simulation techniques for real-world engineering problems. This training is essential for engineers, researchers, and enthusiasts looking to enhance their expertise in computational analysis and design.

Objectives:-

1. **Fundamental Understanding:** Provide participants with a solid foundation in ANSYS software, including its interface, tools, and capabilities for engineering simulations.
2. **Hands-on Training:** Enable participants to perform real-time simulations, analyze results, and optimize designs through practical exercises and case studies.
3. **Application in Engineering:** Demonstrate the application of ANSYS in various engineering fields, such as structural analysis, fluid dynamics, and thermal simulations.
4. **Problem-Solving Skills:** Equip participants with the ability to diagnose and troubleshoot common simulation challenges, enhancing their problem-solving and analytical skills.

Outcomes:

- Summarize **comprehensive understanding** of ANSYS software and its applications in engineering simulations.
- Apply ANSYS tools to perform structural, thermal, and fluid simulations in practical scenarios
- Analyze **problem-solving skills** to troubleshoot common engineering challenges through simulations.
- Explore **practical knowledge** in computational analysis, bridging the gap between theoretical learning and real-world applications.
- **Integrate** both faculty and students to **ANSYS-based simulations** into academic projects, research, and industry-relevant applications.
- Create models during the ANSYS hands-on training using various ANSYS modules such as **ANSYS Mechanical**, **ANSYS Fluent**, and **ANSYS Thermal**.

GAERFEST 2K25" Technical Event


Inauguration of program by dignitaries


Participants during program

The Department of Mechanical Engineering successfully organized a National-Level Technical Event titled **"GAERFEST 2K25"** on **16th April 2025**.

AIM :-The event aimed to provide a dynamic platform for students from diverse academic backgrounds—including diploma, science, and engineering streams—to showcase their innovative ideas, technical acumen, and creative abilities.The event commenced with a warm welcome extended to the **Chief Guest, Mr. Pramod Nichat**, CEO of **Nichat Motors**, by **Dr. Mukul Pande**, Director of Information Technology. In his insightful address, Mr. Nichat emphasized several key themes relevant to students' academic and professional development. He highlighted the **value of time** as a crucial resource and stressed the

importance of continually acquiring new skills to remain competitive in today's fast-evolving technological landscape. Moreover, he underlined the significance of **professional behavior and respectful conduct**, encouraging students to maintain a positive and courteous attitude in all interactions. The event was a great success and served as a meaningful opportunity for students to engage with industry leaders, enhance their technical knowledge, and gain valuable insights for their future careers.

2. Objective of the Program

- To foster innovation, technical knowledge, and creativity among young minds.
- To provide a competitive yet collaborative environment for technical skill development.
- To promote interdisciplinary learning and collaboration.
- To offer students a chance to showcase their projects, models, and technical awareness.
- To enhance leadership, teamwork, and presentation skills among participants.

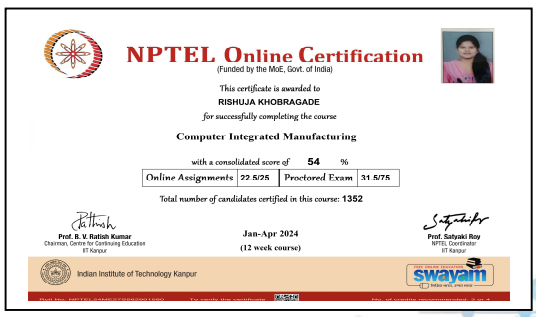
3. Activities Conducted

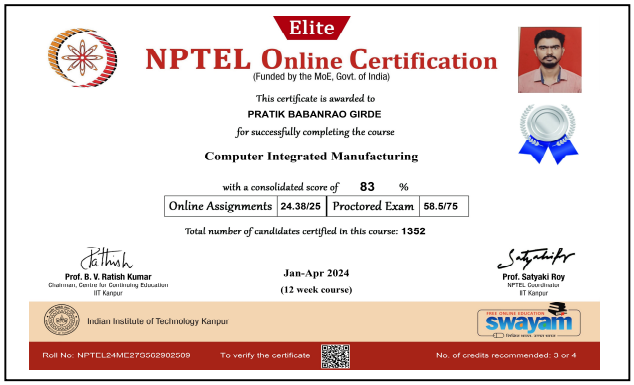
The event comprised the following activities:

S. No.	Activity	Description
1	**CAD Model Competition**	Designing and presenting innovative 3D mechanical models using CAD software.
2	**Quiz Competition**	A technical quiz assessing participants' knowledge in mechanical, general engineering, and innovation trends.
3	**Poster Competition**	Designing posters on emerging technological themes like AI in Manufacturing, Sustainable Engineering, etc.
4	**Project Competition**	Presentation of innovative prototypes, research models, and engineering solutions.
5	**E-Sport Competition**	A gaming contest promoting strategy building, quick decision-making, and stress management skills.

Students NPTEL Achievements

Sr. No.	Name of Students	Course	Position/Remark	Organized by / Date of Conduction
1.	Pratik Babanrao Girde	Automation in Manufacturing	Elite 66%	Swayam/NPTEL
2.	Rishuja Khobragade	Computer Integrated Manufacturing	Completed 54%	Swayam/NPTEL
3.	Pratik Babanrao Girde	Computer Integrated Manufacturing	Elite-83%	Swayam/NPTEL
4.	Sumit Shalikram Dhoke	Computer Integrated Manufacturing	Elite-72%	Swayam/NPTEL
5.	Gajanan Vinod Chavan	Design Practice - II	Completed 53%	Swayam/NPTEL
6.	Pratik Babanrao Girde	Manufacturing Processes - Casting and Joining	Completed 49%	Swayam/NPTEL
7.	Pratik Babanrao Girde	Manufacturing Systems Technology I & II	Elite-60%	Swayam/NPTEL
8.	Shubham Chaudhari	Computer Integrated Manufacturing	Elite-68%	Swayam/NPTEL





Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

PRATIK BABANRAO GIRDE

for successfully completing the course

Computer Integrated Manufacturing

with a consolidated score of 83 %

Online Assignments	24.38/25	Proctored Exam	58.5/75

Total number of candidates certified in this course: 1352

Prof. B. V. Ratish Kumar
Chairman, Centre for Continuing Education
IIT Kanpur

Jan-Apr 2024
(12 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

Roll No: NPTEL24ME27G502902569 To verify the certificate No. of credits recommended: 3 or 4

Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

SUMIT SHALIKRAM DHOKE

for successfully completing the course

Computer Integrated Manufacturing

with a consolidated score of 72 %

Online Assignments	24.38/25	Proctored Exam	47.45/75

Total number of candidates certified in this course: 1352

Prof. B. V. Ratish Kumar
Chairman, Centre for Continuing Education
IIT Kanpur

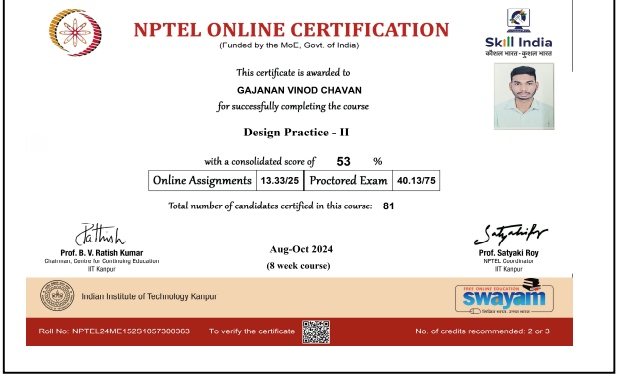
Jan-Apr 2024
(12 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

Roll No: NPTEL24ME27G502902757 To verify the certificate No. of credits recommended: 3 or 4



NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India

This certificate is awarded to

GAJANAN VINOD CHAVAN

for successfully completing the course

Design Practice - II

with a consolidated score of 53 %

Online Assignments	13.33/25	Proctored Exam	40.13/75

Total number of candidates certified in this course: 81

Prof. B. V. Ratish Kumar
Chairman, Centre for Continuing Education
IIT Kanpur

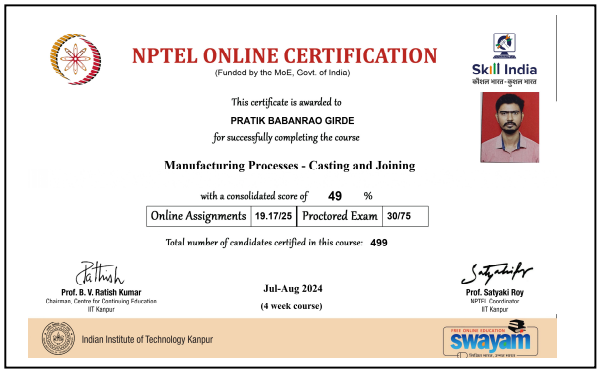
Aug-Oct 2024
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

Roll No: NPTEL24ME15251057300303 To verify the certificate No. of credits recommended: 2 or 3



NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India

This certificate is awarded to

PRATIK BABANRAO GIRDE

for successfully completing the course

Manufacturing Processes - Casting and Joining

with a consolidated score of 49 %

Online Assignments	19.17/25	Proctored Exam	30/75

Total number of candidates certified in this course: 499

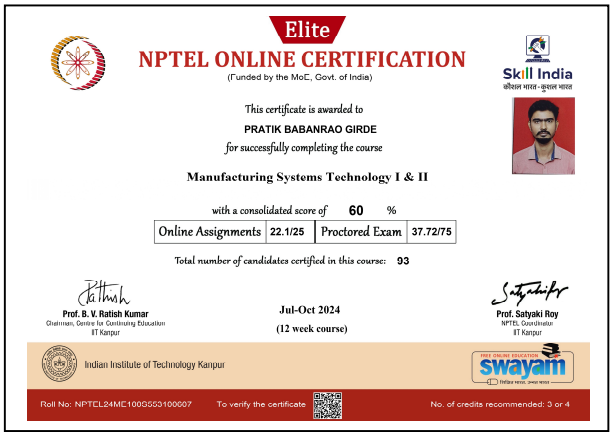
Prof. B. V. Ratish Kumar
Chairman, Centre for Continuing Education
IIT Kanpur

Jul-Aug 2024
(4 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam



Elite

NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India

This certificate is awarded to

PRATIK BABANRAO GIRDE

for successfully completing the course

Manufacturing Systems Technology I & II

with a consolidated score of 60 %

Online Assignments	22.1/25	Proctored Exam	37.72/75

Total number of candidates certified in this course: 93

Prof. B. V. Ratish Kumar
Chairman, Centre for Continuing Education
IIT Kanpur

Jul-Oct 2024
(12 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

Roll No: NPTEL24ME10GS53100007 To verify the certificate No. of credits recommended: 3 or 4

Faculty NPTEL Achievement

Sr. No.	Name of Students	Course	Position/Remark	Organized by / Date of Conduction
1	Prof. L Chaitanya Maddila	NATE	Elite Certification	NPTEL/SWAYAM
2	Prof.Ravindra Shende	NATE	Certificated	NPTEL/SWAYAM
3	Prof.Dipali Bhoyar	NATE	Elite Certification	NPTEL/SWAYAM
4	Prof.Ravindra Shende	NATE	Elite Certification	NPTEL/SWAYAM

NPTEL ONLINE CERTIFICATION
(Funded by the MoE, Govt. of India)

This certificate is awarded to
RAVINDRA SHENDE
for successfully completing the course
Engine system and performance
with a consolidated score of 55 %
Online Assignments 20.22/25 | Proctored Exam 34.5/75
Total number of candidates certified in this course: 159
Jan-Apr 2025
(12 week course)
Prof. T. V. Bharat
Indian Institute of Technology Guwahati
Roll No: NPTEL25ME19G1052001593 To verify the certificate No. of credits recommended: 3 or 4

Elite
NPTEL ONLINE CERTIFICATION
(Funded by the MoE, Govt. of India)

This certificate is awarded to
L CHAITANYA MADDILA
for successfully completing the course
NBA Accreditation and Teaching and Learning in Engineering (NATE)
with a consolidated score of 61 %
Online Assignments 19.85/25 | Proctored Exam 41.25/75
Total number of candidates certified in this course: 2145
Prof. G. L. Sivakumar Babu
Jan-Apr 2025
(12 week course)
Prof. L. Umanand
Indian Institute of Science Bangalore
Roll No: NPTEL25GE20G1052002070 To verify the certificate No. of credits recommended: 3 or 4

Elite

NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India

This certificate is awarded to

RAVINDRA SHENDE

for successfully completing the course

Effective Writing

with a consolidated score of 75 %

Online Assignments	23.54/25	Proctored Exam	51.25/75

Total number of candidates certified in this course: 3877

Prof. Kaushik Ghosh, Professor(Chemistry) Coordinator CEC

Jan-Mar 2025

(8 week course)

Prof. Ranjana Pathania, Professor (RSRF) Coordinator (NPTEL)

Indian Institute of Technology Roorkee

swayam

Roll No: NPTEL25IG14S40300094 To verify the certificate No. of credits recommended: 2 or 3

Elite

NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill Indi

This certificate is awarded to

DIPALI CHANDRABHAN BHOYAR

for successfully completing the course

Automatic Control

with a consolidated score of 63 %

Online Assignments	17.92/25	Proctored Exam	45/75

Total number of candidates certified in this course: 91

Prof. Kaushik Ghosh, Professor(Chemistry) Coordinator CEC

Jan-Mar 2025

(8 week course)

Prof. Ranjana Pathania Professor (RSRF) Coordinator (NPTEL)

Indian Institute of Technology Roorkee

swayam

Roll No: NPTEL25MC07S640302900 To verify the certificate No. of credits recommended: 2 or

Department in Media 2024-25

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'टीजीपीसीईटी'मध्ये व्याख्यान

नागपूर : गायकवाड पाटील अभियांत्रिकी महाविद्यालयाच्या यांत्रिकी अभियांत्रिकी विभागाने 'शॉप फ्लोअर मॅनेजमेंट' या विषयावर अतिथी व्याख्यानाचे आयोजन केले होते. यावेळी महिंद्रा अँड महिंद्राचे प्रशिक्षण विभाग प्रमुख संजय अग्रवाल यांनी मार्गदर्शन केले. उद्योगात काम करताना विद्यार्थ्यांनी कुठल्या गोष्टींची काळजी घ्यावी यावर संजय अग्रवाल यांनी मार्गदर्शन केले. तसेच विद्यार्थ्यांनी विचारलेल्या प्रश्नांची उत्तरेही दिली. संस्थेचे अध्यक्ष डॉ. मोहन गायकवाड, आकाश गायकवाड, डॉ. संदीप गायकवाड, डॉ. पी. एल. नाकतोडे आदींची कार्यक्रमासाठी शुभेच्छा दिल्या.

A News of Guest Lecture on "Shop Floor Management" Organized by Mechanical Engineering Department of TGPCET Nagpur Published in Loksatta on dated 07-03-2025

TGPCET Mechanical Engineering Department Hosts ANSYS Training Program

Nagpur: The Mechanical Engineering Department of Tulsiramji Gaikwad Patil College of Engineering and Technology (TGPCET) successfully organized a two-day hands-on training program on ANSYS software on March 24, 2025. The event, held at Kirloskar Hall, TGPCET, focused on Computational Fluid Dynamics (CFD) analysis using Workbench Geometric Meshing.

Mr. M. Mayuresh Kuchekar, a Mechanical Design Engineer at Virtual Simutech Pvt. Ltd., Pune, provided expert insights into real-world applications and advanced simulation techniques. The sessions were led by experienced faculty members and trainers, equipping students with essential skills in geometric meshing, CFD simulation, and problem-solving.

The department remains committed to fostering technical excellence and preparing students for industry challenges through such initiatives. The event was graced by esteemed dignitaries, including Hon'ble Mohan Gaikwad-Patil (Chairman, GPGI), Hon'ble Mr. Akash Gaikwad-Patil (Vice-Chairman, GPGI), Hon'ble Dr. Mohan Gaikwad-Patil (Treasurer, GPGI), P. L. Naktode (Principal), and Dr. Pragati Patil Bedekar (Vice-Principal).

The college extends its heartfelt gratitude to all stakeholders for their invaluable support in making this event a success.

A News of inauguration "Two-day hands-on training program on ANSYS software" Organized by Mechanical Engineering Department of TGPCET Nagpur Published in Desh pardesh Kesri on dated 25-03-2025.

टीजीपीसीईटी, नागपूर येथे मेकॅनिकल इंजिनिअरिंग विभागाने 'शॉप फ्लोअर मॅनेजमेंट' या विषयावर अतिथी व्याख्यान आयोजित

दैनिक देशप्रदेश केसरी

मंगळवार, 4 मार्च 2025 रोजी, मेकॅनिकल इंजिनिअरिंग विभागाने 'शॉप फ्लोअर मॅनेजमेंट' या विषयावर अतिथी व्याख्यान आयोजित केले, जे महिंद्रा अँड महिंद्रा लिमिटेड, नागपूर येथील प्रशिक्षण विभाग प्रमुख श्री. संजय अग्रवाल यांनी दिले. कार्यक्रमाची सुरुवात प्रमुख पाहुणे श्री. संजय अग्रवाल आणि डॉ. विजय तलेभीकर (प्रमुख, मेकॅनिकल विभाग) यांच्या हस्ते दीपप्रज्वलनाने झाली. उद्घाटनपर भाषण डॉ. विजय तलेभीकर यांनी दिले.तज्ञाने शॉप फ्लोअर मॅनेजमेंटच्या मूलभूत संकल्पनांचाबल सविस्तर माहिती दिली आणि पुढील सहव्यवस्थापन मुद्द्यांवर विशेष भर दिला. शॉप फ्लोअर मॅनेजमेंटची ओळख, शॉप फ्लोअर मॅनेजमेंटचे घटक, लीन मॅन्युफॅक्चरिंग आणि शॉप फ्लोअर कार्यक्षमता, शॉप फ्लोअर मॅनेजमेंटमधील रोजगार आणि डिजिटलायझेशन, शॉप फ्लोअरवरील गुणवत्ता व्यवस्थापन, कार्यक्षमेची सुरक्षितता आणि नियमांचे पालन, शॉप फ्लोअर मॅनेजमेंटमधील नेतृत्वाची भूमिका, केस स्टडीज आणि उद्योगातील सर्वोत्तम पद्धती, प्रश्नोत्तर आणि संवादात्मक चर्चा. या अतिथी व्याख्यानाचे आयोजन कार्यशाळासाठी अमूल्य पाठबळ दिल्याबद्दल डॉ. मोहन गायकवाड-पाटील (अध्यक्ष, जीपीजी), श्री. आकाश गायकवाड-पाटील (उपाध्यक्ष, जीपीजी), डॉ. संदीप गायकवाड-पाटील (खजिनदार, जीपीजीआय), डॉ. पी. एल. नाकतोडे (प्राचार्य), आणि डॉ. प्रगती पाटील-बेडेकर (उपप्राचार्य) यांचे मनःपूर्वक आभार. या कार्यक्रमाचे समन्वयक प्रा. प्रभर पवकाने होते.

News of Guest Lecture on "Shop Floor Management" Organized by Mechanical Engineering Department of TGPCET Nagpur Published Deshpradesh Kesri on dated 12-03-2025

TGPCET

TULSIRAMJI Gaikwad-Patil College of Engineering & Technology (TGPCET) organised a Guest Lecture on 'Shop floor management' delivered by Sanjay Agrawal, Head Training Department, Mahindra & Mahindra Ltd Nagpur. The expert provided detailed information about the basics of Shop floor management.

A News of Guest Lecture on "Shop Floor Management" Organized by Mechanical Engineering Department of TGPCET Nagpur Published in The Hitavada on dated 19-03-2025

कम्प्यूटेशनल फ्लूइड डायनामिक्स पर सेशन

विद्यार्थियों को दिया गया प्रशिक्षण

एजुकेशन भास्कर | नागपुर, तुलसीरामजी गायकवाड़-पाटील कॉलेज ऑफ इंजीनियरिंग एंड टेक्नोलॉजी के मैकेनिकल इंजीनियरिंग विभाग एवं एसएसवाईएस सीएफडीसेंटर पर दो दिवसीय व्यावहारिक प्रशिक्षण कार्यशाला का आयोजन किया गया। किर्लोस्कर हॉल में आयोजित इस कार्यक्रम में वर्कबेंच जियोमेट्रिक मेशिंग के जरिए कम्प्यूटेशनल फ्लूइड डायनामिक्स (सीएफडी) विश्लेषण पर केंद्रित रहा हुए। पुणे के मैकेनिकल डिजाइन इंजीनियर एम. मयूरेश कुचेकर ने उन्नत सिमुलेशन तकनीकों और वास्तविक दुनिया में उनके अनुप्रयोगों पर मार्गदर्शन दिया। अनुभवी फैकल्टी और प्रशिक्षकों द्वारा संचालित इस प्रशिक्षण में छात्रों को ज्यामितीय मेशिंग, सीएफडी सिमुलेशन और समस्या समाधान में व्यावहारिक अनुभव प्रदान किया गया। विभाग का उद्देश्य इस प्रकार की पहल के माध्यम से छात्रों को तकनीकी दक्षता प्रदान कर उन्हें उद्योग की भविष्य की चुनौतियों के लिए तैयार करना है।

A News of inauguration "Two-day hands-on training program on ANSYS software " Organized by Mechanical Engineering Department of TGPCET Nagpur Published in Dainik Bhaskar on dated 25-03-2025

Faculty Article 1

Microchip Launches MCP16701 PMIC to Strengthen AI Application Development- Prof.Praful R.Randive

Microchip Technology's MCP16701 exemplifies a new generation of power management ICs (PMICs) designed to streamline system design while delivering high efficiency and flexibility. Combining buck converters, low-dropout regulators (LDOs), and an integrated controller, the device provides a compact and effective solution for managing power in a wide range of applications.

John Demiray, senior product marketing manager of the analog power and interface division at Microchip, noted in an exclusive interview with Power Electronics News the key features and applications of the new PMIC, as well as its most relevant benefits. He emphasized that this level of integration significantly reduces PCB area and cuts the component count compared with traditional discrete solutions.

Benefits for AI-driven applications:-

The increasing complexity of AI applications is generating reliable solutions in overwhelming growing power demands. In a recent conversation, the Microchip team provided details on new developments that are impacting how the new PMICs improve their offering.

Microchip claimed that AI at the edge and core is driving increased integration and power consumption in industrial automation and smart manufacturing. Industrial and computing customers are at the forefront of this transformation, seeking advanced power management solutions that offer superior performance, energy efficiency, and reliability.

Faculty Article:-II

The power distribution architecture in Vehicle: Prof.Praful Datey

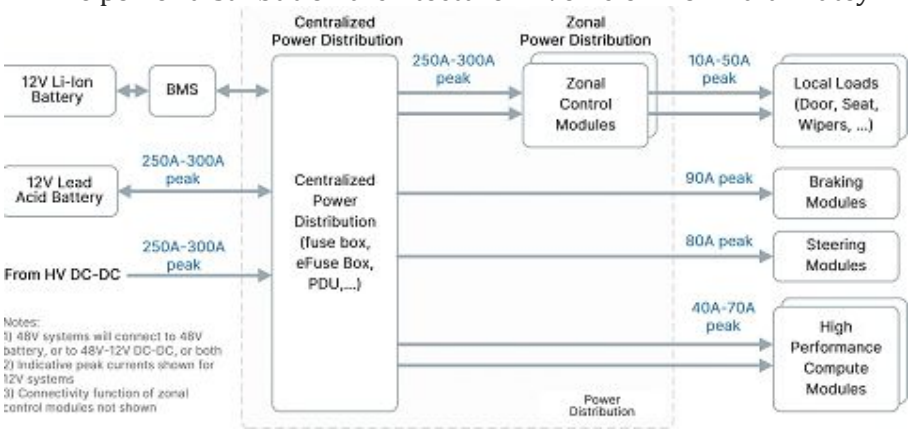

Fig.1 The power distribution architecture of today's vehicles

Onsemi's innovative Smart Switches are designed to replace conventional fuses and redefine automotive power management

electrical systems have rapidly evolved due to the proliferation of advanced functionalities and the increasing adoption of electrification. Modern vehicles are equipped with an ever-increasing

number of Electronic Control

Units (ECUs) that perform several tasks, from basic functions to complex systems like Advanced Driver-Assistance Systems (ADAS).

The increased complexity of the power distribution system has created significant challenges for traditional architectures, highlighting the need for more intelligent and flexible solutions. To address these challenges, onsemi introduced its innovative Smart Switch families, designed to replace conventional fuses and redefine automotive power management.

In a presentation given at the PCIM Expo & Conference, Jon Harper, Member of Technical Staff, Analog and Mixed-Signal Group Automotive at onsemi, gave insights on the Smart Switch technology.

The growing complexity of automotive electrical systems

Years ago, electrical systems were relatively simple and primarily designed to implement essential functions such as electronic ignition, radio operation, and central locking. These systems were characterized by simple wiring configurations, where a direct connection between the battery, switch, and load was the norm

onsemi's Smart Switches represent a significant advancement in automotive power distribution technology, offering a set of intelligent features that address the limitations of traditional fuses. These solid-state devices provide precise current and voltage monitoring, enabling real-time feedback on the electrical system's condition, and reduce power consumption when the car is in standby.

This capability is essential for ensuring the reliable operation of safety-critical systems and facilitating advanced diagnostics. Furthermore, Smart Switches offer programmable current limits, allowing for flexible adaptation to varying load requirements and system configurations. This adaptability simplifies vehicle design and reduces the need for multiple fuse types.

"When you have electronic fuses, it's easy to change their values, dimensioning them to your needs. If you don't have a flexible system, you have to do a lot of wiring changes", said Harper.

The power distribution architecture of today's vehicles is shown in Figure 1, where the fuse box functions are covered by the centralized power distribution and the zonal control modules

Department in Social Media

Following are our Social Media platforms where anyone can access the activities conducted in the department.

Instagram -https://www.instagram.com/tgpcet?igsh=NTJrY3NjNzN2eWU3

Youtube - https://youtube.com/@mechanicalengineering488?si=DbcHkozPj2rRjbhE

Facebook - https://www.facebook.com/mechanical.depttgpcet.3